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The air as a part of our global environment

The Air Resources Laboratory (ARL) studies processes that relate to air quality and climate, concentrations of trace gases and aerosols (the exchange between the atmosphere and the surface), and the role of natural variability. The time frame of interest ranges from minutes to years, much shorter than that of the global climate.

Recent Accomplishments:

- " Quantify the response of the emission rates mandated by the ARL monitoring data reveal that there is near correspondence between reductions in sulfur emissions and quality across the eastern USA, but with some quality across the east more than others.
- " Provide a new generation of air quality standards for exploring control options. ***Paid for by the air quality community, a result of collaboration with the EPA.***
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- " Improve and deploy modern high-tech systems for determining exchange rates (evaporation rates and pollution deposition, for example using aircraft). ***Payoffs: The Best Available Technology (BAT) probe is now a widely accepted tool for studies of how the air and the surface interact.***
- " Provide a system for forecasting dispersion products of the National Weather Service, forecast products of the emergency management managers. ***Applications and Display System (READY) is now an accepted product, available through...***

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What's Next for ARL?

Scientific Challenges in the next five to 10 years:

- " Demonstrate a fully coupled meteorology and air quality modeling system to provide guidance to air quality managers, private forecasters, environmentalists at large. The challenges are to improve upon existing statistical and statistical methods in a routine operational system.
- " Complete an experimental assessment of continental gases, especially carbon dioxide. This will answer questions about source or sink for carbon dioxide, and about the contribution of human activities.
- " Develop and demonstrate an integrated atmosphere/biosphere pollution transport model, suitable for model, suitable for construction of a compartment of it.
- " Provide routine information on the surface boundary condition for the next weather forecasting models the Weather Research and Forecasting expansion of the ARL Surface Radiation (SURFRAD) program, and coupling programs such as AmeriFlux (in which ARL is also a major player).
- " Complete an assessment of atmospheric mercury and other toxic attention to high latitudes and other sensitive ecosystems.
- " Improve and implement a forecasting system for smoke and haze, for the continental USA.

Research Partnerships:

ARL is in partnership with many universities and ARL is in partnership with many universities and universities. University Corporation for Atmospheric Research, Oak Ridge Y-12, National Oceanic and Atmospheric Administration Cooperative/Joint Institutes. ARL is also in partnership with other federal agencies, including NOAA, EPA and the Department of Defense.

- " The Cooperative Institute for Atmospheric and Environmental Science in Las Vegas and Reno, Nevada, is a NOAA cooperative institute (DRI) of the University and Community College System of Nevada (UCCSN).
- " The Cooperative Institute for Research in the Atmosphere is a cooperative institute between NOAA and Colorado State University.
- " The Cooperative Institute for Research in Environmental Sciences (CIRES) is a cooperative institute between NOAA and the University of Colorado.

Budget and Staff:

ARL is a \$17.2 million laboratory (\$3.3 million in NOAA base), with 14 university, and 22 contract employees.

For more information, contact:

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